

STATE OF SOUTH DAKOTA  
BOARD OF MINERALS AND ENVIRONMENT  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF PROPOSED TITLE V	)	CONSOLIDATED
AIR QUALITY PERMIT AND ACID RAIN	)	
PERMIT NO. 28-0801-29 FOR THE BIG	)	Permit No. 28.0801-29
STONE FACILITY AND IN THE MATTER	)	&
OF PROPOSED PSD PERMIT NO. 28-0803-PSD	)	Permit No. 28.0803-PSD
FOR THE BIG STONE II FACILITY	)	
	)	

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**SIERRA CLUB AND CLEAN WATER ACTION, INC.'S PETITIONS  
FOR CONTESTED CASE HEARINGS ON THE BIG STONE  
FACILITY'S PROPOSED TITLE V AIR QUALITY PERMIT AND  
ACID RAIN PERMIT NO. 28-0801-29 AND THE BIG STONE II  
FACILITY'S PROPOSED PSD PERMIT NO. 20-0803-PSD**

1. Petitioners, Sierra Club and Clean Water Action, Inc. (collectively referred to as "Petitioners"), by and through their undersigned attorneys, and pursuant to Rules 74:09:01, 74:36:05:17, 74:36:09:03, and 74:36:05:20.02 of the Administrative Rules of South Dakota ("ARSD"), hereby contest and object to the decision of the South Dakota Department of Environment and Natural Resources ("SDDENR") to issue a renewed and modified Title V air quality permit and acid rain permit (No. 28-0801-29) (hereinafter referred to "Title V permit") and a proposed PSD permit (No. 28-0803-PSD) (hereinafter referred to "PSD permit") to the owners and operators<sup>1</sup> of the Big Stone Generating Station ("Big Stone Plant") in Grant County,

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<sup>1</sup> The owners and operators identified for the existing Big Stone facility on the Title V permit are: Otter Tail Corporation d.b.a. Otter Tail Power Company; Montana-Dakota Utilities Co. a Division of MDU Resources Group; and Northwestern Energy. The owners and operators identified on the PSD permit for the proposed new unit are: Otter Tail Power Corporation, d/b/a Otter Tail Power Company; Central Minnesota Municipal Power Agency; Heartland Consumers Power District; Montana-Dakota Utilities Co., a Division of MDU Resources Group; and Western Minnesota Municipal Power Agency. For purposes of this petition, unless otherwise specified, the owners and operators of Big Stone I (the existing facility at the Big Stone Plant) and Big Stone II (the proposed new co-located 600 megawatt coal-fired unit) are collectively

South Dakota. Petitioners respectfully request a contested case hearing before the South Dakota Board of Minerals and Environment (the “Board”) pursuant to and in accordance with ARSD 74:09:01, 74:36:05:17, 74:36:09:03, and 74:36:05:20.02.

2. Among other things, the challenged permits allow the construction and operation of a new 600 megawatt coal-fired electrical generating unit (hereinafter referred to as “Big Stone II”), to be co-located with the existing and currently operating 450 MW coal-fired electrical generating unit and ancillary equipment known as Big Stone I. Petitioners opposes the issuance of the two challenged permits because they violate provisions of South Dakota’s air pollution control laws and regulations, S.D. Codified Laws § 34A-1-1 *et seq.*; ARSD 74:36:09 *et seq.*, ARSD 74:36:05 *et seq.*, the South Dakota State Implementation Plan (“South Dakota SIP”), 72 Fed. Reg. 4671 (Feb. 1. 2007); 72 Fed. Reg. 72617 (Dec. 21, 2007), and the federal Clean Air Act (“CAA” or the “Act”), 42 U.S.C. §§ 7401 *et seq.*, and its implementing regulations, 40 C.F.R. § 52.21, 40 C.F.R § 70.1 *et seq.*, and 40 C.F.R. § 51.166. In support of this petition, and pursuant to ARSD 74:09:01:01, Petitioners state as follows:

### **STATEMENT OF PETITIONERS’ INTEREST**

3. The Sierra Club is a national non-profit corporation organized and existing under the non-profit corporation laws of the state of California. The Sierra Club, a national conservation organization with over 600,000 members, is dedicated to protecting natural resources, including clean air and water. Sierra Club’s national office is located at 85 Second Street, San Francisco, CA 94105. Sierra Club’s South Dakota Field Office is located at 508 6th

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referred to as “Otter Tail.”

Street, Suite 307, Rapid City, South Dakota 57701. Sierra Club's North Star Chapter (Minnesota) is located at 2327 East Franklin Avenue, Suite 1, Minneapolis, Minnesota 55406-1024.

4. Sierra Club exists for the purposes of preserving and protecting the environment and has been actively engaged in protecting air quality and other environmental values throughout South Dakota, Minnesota and the northern plains for years.

5. Since 1981, Sierra Club's stated purposes in its Articles of Incorporation ([www.sierraclub.org/policy/articles\\_current.asp](http://www.sierraclub.org/policy/articles_current.asp)) have been:

to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

6. Sierra Club's strong interest in protecting and enhancing the quality of ambient air and surface waters throughout the states of South Dakota, Minnesota and the entire region will be adversely affected if the proposed permits are upheld, because, *inter alia*, Sierra Club's members will be adversely impacted by the emissions associated with the challenged Permits Nos. 28.0801-29 and 28-0803-PSD.

7. Sierra Club members reside in, work in, visit and/or use the resources of northeast South Dakota, west central Minnesota and other areas within the same region as the Big Stone Plant are directly and adversely impacted by the excess and unlawful air emissions due to the illegal modifications that have occurred at Big Stone I between 1995 and the present and will be directly adversely impacted by the construction and operations and emissions of the proposed Big Stone II project if it is permitted as proposed.

8. The aesthetic, recreational, environmental, economic and health-related interests of Sierra Club's members will be injured and otherwise adversely impacted by Big Stone II's operations and emissions. For example, if Big Stone II is permitted in accordance with Permit Nos. 28.0801-29 and 28-0803-PSD, Sierra Club members living, working, visiting and/or recreating in the area of the Big Stone Plant will breathe air that is more polluted than allowed under the Clean Air Act and South Dakota law, and will have their recreational interests and enjoyment associated with viewing natural scenery and wildlife impaired by the additional air and other pollution emitted by the modified Big Stone Plant. Furthermore, Sierra Club members' interest in protecting the natural ecology of the region from air pollution-related impacts and enjoying natural resources, including, without limitation, ambient air and surface waters, will be adversely impacted if Big Stone II is permitted as proposed.

9. Clean Water Action, Inc. ("Clean Water Action") is a national non-profit corporation organized and existing under the non-profit corporation laws of the state of the District of Columbia. Clean Water Action is a national environmental advocacy organization with over 1,000,000 members working in 18 states. Clean Water Action is an organization of diverse individuals and groups working to protect our health, environment, economic well-being and community quality of life. Clean Water Action's goals include working for clean, safe and affordable water, prevention of health-threatening pollution, creation of environmentally safe jobs and businesses, and empowerment of people to make democracy work. Clean Water Action organizes strong grassroots groups, coalitions and campaigns to protect our environment, health, economic well-being and community quality of life.

10. Clean Water's national office is located at 4455 Connecticut Ave NW, A300

Washington, DC 20008. Clean Water Action's South Dakota Field Office is located at 405 South 3rd Ave., Suite 102A, Sioux Falls, South Dakota 57104. Clean Water Action also maintains offices in Minneapolis, Minnesota, Fargo, North Dakota, Duluth Minnesota and LaCrosse, Wisconsin.

11. Clean Water Action was incorporated to organize concerned citizens at the local, state and national levels to advocate for policies to protect the public health and to hold government accountable to the needs of communities most affected by adverse environmental impacts. Toward this purpose, Clean Water Action has been actively engaged in working with communities in South Dakota, North Dakota and Minnesota since 1982.

12. Clean Water Action's mission states:

Clean Water Action is an organization of diverse individuals and groups working to protect our health, environment, economic well-being and community quality of life. Clean Water Action's goals include: working for clean, safe and affordable water, prevention of health-threatening pollution, creation of environmentally safe jobs and businesses, and empowerment of people to make democracy work. Clean Water Action organizes strong grassroots groups, coalitions and campaigns to protect our environment, health, economic well-being and community quality of life.

13. Clean Water Action's members have been actively involved in challenging the Big Stone II proposal for the last two years, writing letters, attending meetings and organizing in their communities. Their concerns center around adverse impacts to air quality, both from the expansion and from the operations at Big Stone to date. Because, *inter alia*, Clean Water Action's members will be adversely impacted by the emissions associated with the challenged Permit Nos. 28.0801-29 and 28-0803-PSD, the organization is compelled to engage in this proceeding.

14. Clean Water Action members reside in, work in, visit and/or use the resources of northeast South Dakota, west central Minnesota and other areas within the same region as the Big Stone Plant and will be directly adversely impacted by the operations and emissions of the new 600 MW coal-fired unit proposed for construction at the Big Stone II if that unit is permitted as proposed.

15. The environmental, economic and health-related interests of Clean Water Action's members will be injured and otherwise adversely impacted by Big Stone II's operations and emissions. For example, if Big Stone II is permitted in accordance with Permit Nos. 28.0801-29 and 28-0803-PSD, Clean Water Action members living, working, visiting and/or recreating in the same area will breathe air that is more polluted than allowed under the Clean Air Act and South Dakota law . Clean Water Action members are concerned about the increased health consequences of the Big Stone II project, in addition to the additional health burden they personally have dealt with for years due to the unlawful historical violations of the Clean Air Act at Big Stone I. In addition, Clean Water Action members' have an acute interest in protecting and improving the already degraded natural resources in the region. For example, the mercury emissions from the Big Stone Plant contaminate local waterbodies, and bioaccumulate in the fish and wildlife that depend on them with detrimental effect on the wildlife and on humans who consume contaminated freshwater fish from those waterbodies.

16. For purposes of this petition challenging SDDENR's decision to approve Permits Nos. 28.0801-29 and 28.0803-PSD, and any future appeals, Petitioners are both "aggrieved parties" and "interested persons" in accordance with ARSD 74:36:05:20.02.

**STATEMENT OF SDDENR'S RECOMMENDATION CONTESTED,  
AND RELIEF AND DECISION REQUESTED FROM  
BOARD OF MINERALS AND ENVIRONMENT**

17. On April 15, 2008, SDDENR issued its proposed final decisions in writing to Sierra Club which provided that SDDENR had incorporated all its final changes into the Big Stone Plant's renewed and modified Title V permit and the PSD permit associated with a proposal for the construction and operation of Big Stone II, a 600 megawatt coal-fired unit, and that those permits represented SDDENR's final permit decisions.

18. Petitioners contest and object to these proposed final decisions of SDDENR to approve the Title V permit for the modified Big Stone Plant (Permit No. 28.0801-29) and the PSD permit (Permit No. 28.0803-PSD) associated primarily with a proposal for the construction and operation of Big Stone II.

19. As set forth more specifically below, Petitioners seek, as relief and as a decision of the Board, the following: (1) a full contested case evidentiary hearing before the Board on the issues set forth in this Petition; (2) an order or decision vacating, withdrawing, or denying both the Big Stone plant's renewed and modified Title V permit and the Big Stone II PSD permit or remanding those permits so that further corrective action can be taken, if possible; and (3) the award of any other relief to which Petitioners are entitled.<sup>2</sup>

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<sup>2</sup> To the extent that Petitioners have any obligation to respond to Otter Tail's two previously filed petitions for a contested case hearing on the Draft Title V permit and Draft PSD permit, which in Petitioners' view lacked any factual allegations requiring a response, Petitioners hereby deny as incorrect and erroneous any factual allegations or implications in Otter Tail's two petitions concerning the technical sufficiency or legal validity of the two challenged permits here. Petitioners request that the Board deny both those proposed permits or remand them so that further corrective action can be taken, if possible.

### **STATEMENT OF LEGAL AUTHORITY AND JURISDICTION**

20. A contested case hearing is sought pursuant to and in accordance with ARSD 74:09:01 *et seq.*, 74:36:09:03 *et seq.*, 74:36:05:17 *et seq.*, and 74:36:05:20.02.

21. This Petition is filed within thirty (30) days of the issuance of the challenged Title V permit and PSD permit in accordance with the March 31, 2008 Scheduling Order in the above-captioned matter and in accordance with ARSD 74:09:01, 74:36:05:17, 74:36:09:03, and 74:36:05:20.02.

22. The pertinent substantive rules at issue in this contested case hearing are principally found at ARSD 74:36:09:01 *et seq.* and 74:36:05:01 *et seq.* In addition, the federal Clean Air Act 42 U.S.C. § 7401 *et seq.*, and relevant implementing regulations, as well as other pertinent EPA regulations incorporated into South Dakota law, and relevant guidance may be addressed in the context of the contested case hearing.

### **STATEMENT OF FACTS AND ISSUES RELEVANT TO PETITIONER'S CONTEST OF PERMIT NOS. 28.0801-29 AND 28.0803-PSD**

#### **The Big Stone Plant and Proposed Big Stone II Project**

23. The Big Stone Plant is an existing electric steam generating power plant located in Grant County, South Dakota near the town of Milbank.

24. The Big Stone Plant currently consists of Big Stone I, a 450 MW coal-fired electric generating unit.

25. Big Stone I is owned and operated by Otter Tail Corporation d.b.a. Otter Tail Power Company; Montana-Dakota Utilities Co., a Division of MDU Resources Group; and Northwestern Energy.



26. The Big Stone II project proposed for construction at the Big Stone Plant. Big Stone II would include a 600 MW super-critical pulverized coal-fired boiler and steam turbine generator with a heat input rate of 6,000 million British thermal units (“MBtus”) per hour, a new fire pump, a new electric generator, a new boiler booster pump, and a new silo booster pump. SDDENR Statement of Basis for the Big Stone II PSD Permit (January 2008) (“hereinafter 2008 Big Stone II PSD SOB”). The Big Stone II project also is proposed to include changes to the operations at the existing Big Stone Plant, including operating changes to the emissions system at Big Stone I, and changes at Big Stone I enabling emissions from Big Stone I to be routed through the sulfur dioxide (SO<sub>2</sub>) emissions control system for Big Stone II, along with the emissions from the Big Stone II unit. SDDENR Title V SOB at 12, 14 (April 2008).

27. SDDENR states that the new Big Stone II unit, operating alone, can emit over 100 tons per year of sulfur dioxide (“SO<sub>2</sub>”), nitrogen oxides (“NO<sub>x</sub>”), carbon monoxide (“CO”), and particulate matter (“PM”), and that Big Stone II, operating alone, would be a major source of these air pollutants. Response to Comments at 15.

28. SDDENR’s 2008 Revised Statement of Basis for the PSD Permit for Big Stone II states that Big Stone II has potential uncontrolled emissions of 56,700 tons per year of SO<sub>2</sub>, and 11,988 tons per year of NO<sub>x</sub>. 2008 Big Stone II PSD SOB at 5.

29. Big Stone II also will emit large amounts of other air pollutants and hazardous air pollutants, including carbon dioxide (“CO<sub>2</sub>”), carbon monoxide (“CO”), volatile organic compounds (“VOC”), sulfuric acid mist (“H<sub>2</sub>SO<sub>4</sub>”), fluorides (“HF”), lead (“Pb”), mercury (“Hg”) and methane (“CH<sub>4</sub>”).

### **Permitting Applications and Related Actions**

30. An application for renewal of the Big Stone I Title V permit was submitted to SDDENR in 2001.

31. The 2001 Title V permit application did not include any information on the proposed Big Stone II project.

32. In 2005, an application was submitted to SDDENR for a PSD permit for the addition of Big Stone II to the existing Big Stone Plant.

33. Revisions and supplements to the PSD application for Big Stone II were submitted to SDDENR in September 2005, February 2006, March 2006, June 2006, August 2006, February 2007, March 2007, July 2007, and October 2007.

34. SDDENR first proposed a draft PSD permit for Big Stone II for public comment in April 2006. SDDENR concurrently issued its application review, or Statement of Basis, for the draft Big Stone II PSD permit.

35. Sierra Club submitted comments to SDDENR on the draft PSD permit for Big Stone II on June 23, 2006, identifying reasons why the proposed PSD permit was unlawful and otherwise legally or technically invalid. These Sierra Club comments are hereby incorporated in their entirety, and attached in redacted form to this Petition as Exhibit A.

36. SDDENR proposed a second draft PSD permit for Big Stone II for public comment in January 2008. SDDENR concurrently issued a supplemental application review, or Statement of Basis.

37. SDDENR also proposed a draft Title V permit for the Big Stone Plant in January 2008, and concurrently issued an associated application review, or Statement of Basis.

38. Sierra Club submitted supplemental comments to SDDENR on the January 2008 draft PSD and Title V permits on March 14, 2008, which again identified reasons that the permits were unlawful and otherwise legally or technically invalid. These Sierra Club comments are hereby incorporated in their entirety, and attached to this Petition as Exhibit B.

39. On April 15, 2008, SDDENR issued a proposed PSD permit for Big Stone II (Permit No. 28-0801-29), a proposed Title V permit for the Big Stone Plant (Permit No. 28.0803-PSD), and its responses to public comments received.

40. In its written notices to Petitioner Sierra Club, SDDENR stated that it has incorporated all its final changes into the Big Stone Facility's renewed and modified Title V permit and the PSD permit for the construction and operation of Big Stone II and that the April permits represent SDDENR's proposed final permit decisions on those matters.

41. On April 22, 2008, Petitioner Sierra Club received these written final determinations from SDDENR by certified mail. Sierra Club received these determinations via e-mail on April 17, 2008.

42. The Petitioners contest and object to these final decisions of SDDENR to approve the Title V permit and the PSD permit (Permit No. 28.0803-PSD) as unlawful, otherwise legally invalid or inadequate, and not in compliance with pertinent South Dakota air pollution control laws, regulations and requirements and/or the requirements of the federal Clean Air Act and implementing regulations and South Dakota SIP, as set forth more fully below.

43. On May 9, 2008, after conducting an evidentiary hearing on the matter, an administrative law judge recommended that the Minnesota Public Utilities Commission (PUC) deny Otter Tail's petition for a certificate of need seeking authorization to construct and operate

two high voltage transmission lines across western Minnesota in order to transfer electricity from the proposed Big Stone II. *In the Matter of the Application of Otter Tail Power Company and Others for Certification of Transmission Facilities in Western Minnesota*, OAH Dkt. No. 12-2500-17037-2, MPUC Dkt. No. ET-6131, ET-2, ET-6130, ET-10, ET-6444, E-017, ET-9/CN-05-619, at \*41 (Admin. Hearing Minn. PUC May 9, 2009). Because these lines are necessary for the proposed Big Stone II project to be functional and economically feasible, if this recommendation is accepted by the Minnesota PUC, the Big Stone II project cannot go forward. For this reason, this administrative proceeding may be effectively moot.

### **Legal and Regulatory Background**

44. Pursuant to SDCL 34-A-1-1, South Dakota has declared that it is:

the public policy of the state to achieve and maintain reasonable levels of air quality which will protect human health and safety, prevent injury to plant and animal life and property, foster the comfort and convenience of its inhabitants, promote the economic and social development of the state and, to the greatest degree practicable, facilitate the enjoyment of the natural attractions of the state. It is also declared that local and regional air pollution control programs are to be supported to the extent practicable as essential instruments for the securing and maintenance of appropriate levels of air quality. To these ends it is the purpose of this chapter to provide for a coordinated state-wide program of air pollution prevention, abatement and control, for an appropriate distribution of responsibilities among the state and local units of government, and to facilitate cooperation across jurisdictional lines in dealing with problems of air pollution not confined within single jurisdictions, and to provide a framework within which all values may be balanced in the public interest.

45. The federal Clean Air Act is designed to protect and enhance the quality of the Nation's air so as to promote the public health and welfare and the productive capacity of its population. 42 U.S.C. §7401(b)(1). The Act provides the minimum requirements for certain state air pollution regulatory programs, including emissions standards or limitations in effect

under a state's SIP, or under 42 U.S.C. §§ 7411 (New Source Performance Standards) and 7412 (Hazardous Air Pollutants). 42 U.S.C. §7416.

46. Section 108(a) of the Act, 42 U.S.C. § 7408(a), requires the EPA to identify and prepare air quality criteria for each air pollutant which may reasonably be anticipated to endanger public health and welfare, and which results from numerous or diverse mobile or stationary sources. Section 109 of the Act 42 U.S.C. § 7409, requires the EPA Administrator to promulgate, for each such "criteria pollutant," National Ambient Air Quality Standards ("NAAQS"), which are ambient air pollution concentration limits, the attainment and maintenance of which, with an ample margin of safety, is requisite to protect the public health and welfare. Sulfur dioxide ("SO<sub>2</sub>"), nitrogen dioxide ("NO<sub>2</sub>"), carbon monoxide, ozone and particulate matter (particulate matter with an aerodynamic diameter less than or equal to 10 microns ("PM-10") and with an aerodynamic diameter less than or equal to 2.5 microns ("PM-2.5")) are among the criteria pollutants for which NAAQS have been established.

47. Section 107(d) of the Act, 42 U.S.C. §7407(d), requires each state to designate those areas within its boundaries where the air quality meets or exceeds the NAAQS for each criteria pollutant. An area that meets or has lower pollutant concentrations than the NAAQS for a particular pollutant is termed an "attainment area," an area that does not meet the NAAQS is termed a "nonattainment area," and where there is no available information to classify an area as meeting or not meeting the NAAQS, that area is designated "unclassifiable."

48. At all times relevant to this petition, the area in which the Big Stone plant is located has been in attainment for the following criteria pollutants: SO<sub>2</sub>, 1-hour ozone, PM 10 and CO. Grant County South Dakota has been in attainment for 8-hour ozone and for PM<sub>2.5</sub>

since designations for those pollutants were made in 2004. As part of the implementation of the 8-hour ozone standard, the 1-hour ozone standard is now revoked in South Dakota as of June 15, 2005. 70 Fed. Reg. 44470, 44477 (Aug. 3, 2005).

49. Congress enacted a Prevention of Significant Deterioration (“PSD”) program in Part C of Title I of the Act, 42 U.S.C. §§ 7470-7492, which applies in areas designated as attainment or unclassifiable. The PSD program’s purposes include insuring that economic growth will occur in a manner consistent with the preservation of existing clean air resources; and assuring that any decision to permit increased air pollution in any area to which the PSD program applies is made only after careful evaluation of all the consequences of such a decision. 42 U.S.C. § 7470.

50. Pursuant to South Dakota’s recently EPA-approved SIP, SDDENR has authority to issue PSD permits for new and modified stationary sources of air pollution in South Dakota. *See* 72 Fed. Reg. 4671 (Feb. 1, 2007); 72 Fed. Reg. 72617 (Dec. 21, 2007).

51. Prior to obtaining SIP approval from EPA for its PSD program, South Dakota was delegated EPA’s authority to implement the federal PSD regulations set forth at 40 C.F.R. § 52.21 *et seq.*

52. Section 302(g) of the Clean Air Act, 42 U.S.C. 7402(g), defines the term “air pollutant” for all purposes of the Act as:

any air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive (including source material, special nuclear material, and byproduct material) substance or matter which is emitted into or otherwise enters the ambient air. Such term includes any precursors to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for which the term “air pollutant” is used.

The United States Supreme Court ruled in *Massachusetts v. EPA*, -- U.S. --, 127 S.Ct.

1438, 1460 (2007), that greenhouse gases, including carbon dioxide and methane, are air pollutants within the meaning of this definition.

53. Under 40 C.F.R. § 52.21(b)(50), incorporated into the South Dakota Administrative Rule and South Dakota SIP at ARSD 74:36:09:02, the term “regulated NSR pollutant” means:

- (i) Any pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds and NOX are precursors for ozone);
- (ii) Any pollutant that is subject to any standard promulgated under section 111 of the Act;
- (iii) Any Class I or II substance subject to a standard promulgated under or established by title VI of the Act; or
- (iv) Any pollutant that otherwise is subject to regulation under the Act; except that any or all hazardous air pollutants either listed in section 112 of the Act or added to the list pursuant to section 112(b)(2) of the Act, which have not been delisted pursuant to section 112(b)(3) of the Act, are not regulated NSR pollutants unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under section 108 of the Act.

54. Carbon dioxide is an air pollutant that is subject to regulation under the Act at 42 U.S.C. §7651k(note) (describing § 821 of Pub. L. 101-549), and the implementing regulations promulgated at 40 C.F.R. Part 70. CO<sub>2</sub> therefore is a regulated NSR pollutant as defined in 40 C.F.R. § 52.21(b)(50)(iv).

55. Methane is an air pollutant that is subject to federal regulation under the Act at, among other places, 40 C.F.R § 60.753; and also is regulated under several state SIPs, e.g., 40 C.F.R. §52.1605 (New Jersey SIP). Methane therefore is a regulated air pollutant as defined in 40 C.F.R. § 52.21(b)(50)(iv).

56. The Administrator of the EPA has promulgated final rules implementing the PSD program requirements of the Act at 40 C.F.R. §52.21. These rules were incorporated (with limited changes not relevant to this petition) into the South Dakota Administrative Rules at ARSD 74:36:09 and into the EPA-approved South Dakota SIP in 2007. Prior to that time, sources in South Dakota were subject to the federal rules implementing PSD program requirements.

57. As set forth at 42 U.S.C. § 7475(a) and 40 C.F.R. § 52.21, and incorporated in ARSD 74:36:09, any major emitting facility in an attainment area that is a “major stationary source” of a regulated air pollutant must obtain a PSD permit prior to beginning actual construction. Additionally, when a “major modification” is proposed for an existing facility, *i.e.*, a physical change or change in the method of operation to the facility that will result in a significant net emission increase of any regulated pollutant, a PSD permit must be obtained prior to beginning actual construction. ARSD 74:36:09:02.

58. A “major stationary source” is defined to include fossil fuel-fired steam electric plants of more than 250 million British Thermal Units (“MBtus”) per hour heat input which emit or have the potential to emit one hundred tons per year or more of any regulated air pollutant. 40 C.F.R § 52.21(b)(1)(i)(a).

59. The SDDENR Statement of Basis for the revised Title V Air Quality Permit proposed for the Big Stone Plant reports the emissions history of Big Stone I as follows: in 2000, 13,258 tons of SO<sub>2</sub> and 16,899 tons of NO<sub>x</sub>; in 2001, 13,618 tons of SO<sub>2</sub> and 16,359 tons of NO<sub>x</sub>; in 2002, 11,756 tons of SO<sub>2</sub> and 14,856 tons of NO<sub>x</sub>; in 2003, 12,261 tons of SO<sub>2</sub> and 15,863 tons of NO<sub>x</sub>; in 2004, 14,296 tons of SO<sub>2</sub> and 17,033 tons of NO<sub>x</sub>. Big Stone I is



therefore a major emitting facility.

60. A “major modification” means “any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase ... of any regulated air pollutant ...; and a significant net emissions increase of that pollutant from the major stationary source. 40 C.F.R. §§52.21(a)(2)(iv)(a), (b)(2); SDAR 74:36:09:02.

61. With respect to SO<sub>2</sub>, NO<sub>x</sub>, PM, and PM<sub>10</sub>, “significant” means, in reference to a net emissions increase or the potential to emit, emission rates that equal or exceed 40 tons per year for SO<sub>2</sub>, 40 tons per year for NO<sub>x</sub>; 25 tons per year for PM, or 15 tons per year of PM<sub>10</sub>. 40 C.F.R §§ 52.21(b)(23)(i) & (40).

62. With respect to SO<sub>2</sub>, NO<sub>x</sub>, PM, and PM<sub>10</sub>, a “significant net emissions increase” from a modified major stationary source means a net emissions increase that would equal or exceed 40 tons per year for SO<sub>2</sub>, 40 tons per year for NO<sub>x</sub>; 25 tons per year for PM, or 15 tons per year of PM<sub>10</sub>. 40 C.F.R §§ 52.21(b)(23)(i) & (40).

63. “Potential to emit” is the maximum capacity of a stationary source to emit a pollutant under its physical and operational design, including any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and operating restrictions, or the type and amount of fuel combusted, stored, or processed, to the extent those limitations are federally enforceable. 40 C.F.R § 52.21(b)(4), ARSD 74:36:09:02.

64. A PSD permit must set forth emission limits for each regulated air pollutant to be emitted by a new or modified major emitting facility in significant amounts, which emissions limits conform to all the requirements of the Act, and PSD program, including the application of

best available control technology (“BACT”) emission limits. 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j); ARSD 74:36:09:02.

65. Additionally, the PSD analysis underlying the permit, and the emissions limits it contains must support, among other things, an air quality analysis to ensure that the increased emissions would not cause or contribute to air pollution in violation of any NAAQS standard in any air region or any applicable maximum allowable increase over the baseline concentration in any area. 42 U.S.C. §7475(a)(1); (a)(3); ARSD 74:36:09:02.

66. Pursuant to 42 U.S.C. § 7475(a)(4), “best available control technology” means:

an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant.

67. The definition of BACT in the implementing federal rules is substantially the same as the statutory definition, and is found at 40 C.F.R. § 52.21(b)(12), which is incorporated into the South Dakota SIP at ARSD 74:36:09:02.

#### **Clean Air Act Title V Provisions**

68. Congress enacted Title V to the Clean Air Act, 42 U.S.C. §§7661-7661f, thereby making it unlawful for any person to operate a major stationary source except in compliance with a permit issued by a state permitting authority (“Title V permit”).

69. The Administrator of the U.S. EPA has promulgated final rules implementing the Title V requirements of the Act at 40 C.F.R. part 70 (“Title V rules”).

70. The federal rules governing issuance of Title V permits define the minimum requirements for the state operating permit programs. 40 C.F.R. § 70.1(a). South Dakota's Title V operating permit program regulations are set forth at SDAR 74:36:05.

71. The issuance of a Title V permit does not alter the applicable requirements to obtain a lawful PSD permit prior to construction or modification of a major emitting facility. 42 U.S.C. §7661a; SDAR 74:36:05:03:01.

72. Each Title V permit must include enforceable emissions limitations and standards, and must assure compliance by the source with all applicable requirements of the Clean Air Act. 42 U.S.C. §7661c (a); 40 C.F.R. § 70.1(b), SDAR 74:36:05:06 & 74:36:05:16:01(8). No Title V permit can be less stringent than necessary to meet all applicable requirements of the Act. 40 C.F.R. § 70.1(c), 74:36:05:16:01(8).

73. Applicable requirements of the Act include any terms or conditions of a PSD permit that implements the requirements of the Act. 40 C.F.R. § 70.2.

#### **Prior Unlawful Modifications Triggering PSD at Big Stone I**

74. SDDENR did not issue the first permit to operate to Big Stone I until January 14, 1975.

75. Big Stone I did not began actual operations until May 1, 1975.

76. Big Stone I burned lignite coal as primary fuel from 1975 until 8/95.

77. Big Stone I switched to burning subbituminous coal as a primary fuel in August of 1995.

78. On information and belief, Big Stone I's owners or operators did not maintain

and submit to either EPA or SDDENR on an annual basis, and for a period of five years from the date of this physical change or change in method of operation was completed, information or data demonstrating that this change did not result in an emissions increase.

79. The coal switch at Big Stone I in 1995 constituted non-exempt major modification which resulted in a significant net increase in emissions of NO<sub>x</sub> and PM and triggered the application of the PSD program set forth at 40 C.F.R. § 52.21 for those pollutants.

80. Since the 1995 coal switch, Big Stone I has violated the Act, the federal PSD regulations and the recently approved South Dakota SIP on each and every day which has operated without obtaining a PSD permit or applying BACT emission limits for NO<sub>x</sub> and PM<sub>10</sub>.

81. In approximately 1998, Big Stone I's primary superheater was redesigned and surface area was added to it, along with other work including refractory replacement.

82. On information and belief, Big Stone I's owners or operators did not maintain and submit to either EPA or SDDENR on an annual basis, and for a period of five years from the date of this physical change was completed, information or data demonstrating that this physical change did not result in an emissions increase.

83. The work involving the superheater at Big Stone I resulted in a significant net increase in emissions of SO<sub>2</sub>, PM, and NO<sub>x</sub> and triggered the application of the PSD program set forth at 40 C.F.R. § 52.21 for those pollutants.

84. The 1998 superheater work at Big Stone I also triggered the application of the Clean Air Act's New Source Performance Standards ("NSPS") Subparts A and Da, 40 C.F.R. §§ 60.1 *et seq.* and 60.40a *et seq.*, as it resulted in an hourly emission rate increase for SO<sub>2</sub>, PM and NO<sub>x</sub>.

85. Since the 1998 superheater work was performed, Big Stone I has violated the Act, the federal PSD regulations, NSPS Subparts A and Da, and the recently approved South Dakota SIP on each and every day which it has operated without obtaining a PSD permit or applying BACT emission limits for SO<sub>2</sub>, PM, and NO<sub>x</sub> and without complying with each and every requirement of NSPS Subparts A and Da.

86. In 2001, SDDENR issued a minor permit amendment to allow Big Stone I to provide steam to an ethanol plant.

87. The permit modification made clear that Big Stone I steam generator was no longer just for production of electricity but was also for providing steam to an ethanol plant (*i.e.*, the source description changed from an EGU to a cogeneration facility).

88. SDDENR also increased the permitted maximum heat input capacity to the boiler from 4,509 MMBtu/hr to 5,609 MMBtu/hr.

89. SDDENR replaced the existing 1,226 pound per hour PM limit with a 0.26 lb/MMBtu PM limit.

90. Physical changes were made to Big Stone I to bring the steam from Big Stone I to the ethanol plant which Petitioners believes in good faith will be shown to have involved physical changes to steam lines and/or other components within the boiler island at Big Stone I.

91. Big Stone I began supplying steam to the ethanol plant in 2002 and continues to do so.

92. On information and belief, Big Stone I's owners or operators did not maintain and submit to either EPA or SDDENR on an annual basis, and for a period of five years from the date of this physical or operational change was completed, information or data demonstrating that

the physical or operational changes relating to the supply of steam from Big Stone I to the ethanol plant did not result in an emissions increase.

93. The work enabling and involving Big Stone I's connection to the ethanol plant constituted a non-exempt major modification as it resulted in a significant net increase in emissions of SO<sub>2</sub>, PM, and NO<sub>x</sub> and triggered the application of the PSD program set forth at 40 C.F.R. § 52.21 for those pollutants.

94. The work enabling the connection to the ethanol plant at Big Stone also triggered the application of NSPS Subparts A and Da, 40 C.F.R. §§ 60.1 *et seq.* and 60.40a *et seq.*, as it resulted in an hourly emission rate increase for SO<sub>2</sub>, PM and NO<sub>x</sub>.

95. Since approximately 2002 when the steam connection between Big Stone I and the ethanol plant was provided, Big Stone I has violated the Act, the federal PSD regulations, NSPS Subparts A and Da, and the recently approved South Dakota SIP on each and every day which it has operated without obtaining a PSD permit or applying BACT emission limits for SO<sub>2</sub>, PM, and NO<sub>x</sub> and without complying with each and every requirement of NSPS Subparts A and Da.

96. Based on the preceding Clean Air Act and South Dakota SIP PSD violations and federal NSPS violations, the emissions from Big Stone I from 1995 on have been unlawful.

#### **PETITIONERS' CONTESTED ISSUES**

##### **Issue 1: The Big Stone II PSD Permit is Unlawful Because it Fails to Address PSD Permitting Requirements for SO<sub>2</sub> and NO<sub>x</sub>.**

97. All the preceding paragraphs are incorporated herein as if set forth in full.

98. Big Stone I is an existing major stationary source of SO<sub>2</sub> and NO<sub>x</sub>, among other pollutants.

99. The Big Stone II project will constitute a modification to the existing Big Stone Plant because it will result in the addition of a new coal-fired electrical generating unit and ancillary sources.

100. A project at an existing major stationary source is considered to be a major modification for a regulated NSR pollutant if it results in a significant emissions increase of that pollutant and it results in a significant net emissions increase of that pollutant. 40 C.F.R. § 52.21(a)(2)(iv)(a); ARSD 74:36:09:02.

101. For a unit that has not yet been constructed, a “significant emissions increase” of a regulated NSR pollutant would occur if the sum of the difference between the potential to emit from each new emissions unit following completion of the project, and the baseline actual emissions of these units before the project equals or exceeds the significant amount for that pollutant as defined in 40 C.F.R. § 52.21(b)(23). 40 C.F.R. § 52.21(a)(2)(iv)(d), ARSD 74:36:09:02.

102. For a new unit that has not been constructed, the baseline actual emissions for purposes of determining the emissions increase that would result from the unit’s construction and operation at an existing facility is zero. 40 C.F.R. § 52.21(b)(48)(iii); ARSD 74:36:09:02.

103. The “net emissions increase” from a modification to a major stationary source means the amount by which the sum of the following exceeds zero: the increased emissions from the particular physical change or change in the method of operation at the stationary source and any other increases or decreases in actual emissions that are contemporaneous with the particular change and are otherwise creditable. 40 C.F.R. 52.21(b)(3)(i); ARSD 74:36:09:02.

104. An increase or decrease in actual emissions is contemporaneous with the increase

from the particular change only if it occurs between the date five (5) years before construction on the particular change commences; and the date that the increase from the particular change occurs. 40 C.F.R. § 52.21(b)(3)(ii). Among other limitations provided in the regulatory definition of “net emissions increase,” a decrease in actual emissions is creditable only to the extent that: the old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions; it is enforceable as a practical matter at and after the time that actual construction on the particular change begins; and it has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change. 40 C.F.R. § 52.21 (b)(3), ARSD 74:36:09:02.

105. Actual emissions are defined as the actual rate of emissions of a regulated NSR pollutant *from an emissions unit*, as determined in accordance with paragraphs (b)(21)(ii) through (iv) of 40 C.F.R. §52.21(b)(21). For a new unit that has not yet commenced construction, actual emissions shall equal potential to emit of that unit. 40 C.F.R. §52.21(b)(21), ARSD 74:36:09:02.

106. Big Stone II has the potential to emit SO<sub>2</sub> and NO<sub>x</sub> in amounts greater than the significance levels in 40 C.F.R. §52.21(b)(23) and therefore the Big Stone II project will result in a significant emissions increase of SO<sub>2</sub> and of NO<sub>x</sub>.

107. Big Stone II will also result in a significant net emissions increase of SO<sub>2</sub> and NO<sub>x</sub>. Therefore, Big Stone II is a major modification for SO<sub>2</sub> and NO<sub>x</sub> and, as such, must be subject to BACT and all other PSD permitting requirements applicable to major modifications for SO<sub>2</sub> and NO<sub>x</sub>.

108. The proposed Big Stone II PSD permit fails to include emission limitations reflective of BACT for SO<sub>2</sub> or for NO<sub>x</sub>, nor has there been an adequate demonstration that Big



Stone II will not cause or contribute to a violation of the SO<sub>2</sub> or NO<sub>2</sub> NAAQS or PSD increments. Thus, the Big Stone II PSD permit fails to address all PSD requirements that apply to major modifications of SO<sub>2</sub> and NO<sub>x</sub>.

109. In an attempt to exempt Big Stone II from PSD requirements for SO<sub>2</sub> and NO<sub>x</sub>, SDDENR imposed plantwide emission limits for SO<sub>2</sub> and NO<sub>x</sub> in the Big Stone Title V permit. Condition 9.2 and 9.4 of the proposed Big Stone Title V permit. SDDENR also imposed a requirement for Otter Tail to route the emissions from Big Stone I through the wet flue gas desulfurization system to be installed at Big Stone II at all times except during periods when the wet flue gas desulfurization systems is not in operation due to malfunctions, repairs, preventative maintenance, or to conduct emissions testing specific to Big Stone II (Unit #13). During those periods, Big Stone I is allowed to operate without routing emissions to the wet flue gas desulfurization system. Condition 9.6 of the proposed Big Stone Title V permit.

110. These plantwide emission limits and requirements for SO<sub>2</sub> and NO<sub>x</sub> are not legally sufficient to ensure that the Big Stone II project will not result in a significant emission increase of SO<sub>2</sub> and NO<sub>x</sub>.

111. These plantwide emission limits for SO<sub>2</sub> and NO<sub>x</sub> are not legally sufficient to ensure that the Big Stone II project will not result in a significant net emissions increase of SO<sub>2</sub> and NO<sub>x</sub>.

112. SDDENR's issuance of a proposed PSD permit allowing construction of a major modification to the Big Stone Plant, but that does not impose emissions limits representing BACT for SO<sub>2</sub> and NO<sub>x</sub> or ensure that all other PSD permitting requirements applicable to major modifications of SO<sub>2</sub> and NO<sub>x</sub> are addressed, is unlawful under 42 U.S.C. § 7475(a)(2); ARSD

74:36:09.

113. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 2: The Plantwide Emissions Limits For SO<sub>2</sub> and NO<sub>x</sub> of the Big Stone Title V Permit Are Not Lawful Plantwide Applicability Limitations (“PALs”) for those Pollutants, and Cannot Exempt the Big Stone II from PSD Applicability and BACT for SO<sub>2</sub> and NO<sub>x</sub>.**

114. All the preceding paragraphs are incorporated herein as if set forth in full.

115. The proposed plantwide emission limits on SO<sub>2</sub> and NO<sub>x</sub>, which Otter Tail and SDDENR rely on to avoid PSD applicability for SO<sub>2</sub> and NO<sub>x</sub> at Big Stone II, are included only in the Big Stone Title V permit and not the Big Stone II PSD permit.

116. The PSD regulations allows compliance with a Plantwide Applicability Limitation (“PAL”) as an alternative to engaging in a PSD applicability analysis through lawful netting for a modification to an existing major stationary source.

117. If a PAL is in place on an existing facility, a modification can occur without undergoing PSD review or triggering BACT, so long as any emissions increase of a regulated pollutant associated with the modification can be accommodated without meeting or exceeding the cap for that pollutant in place as part of the PAL on the existing unit. 40 C.F.R. § 52.21(aa); ARSD 74:36:09:02.

118. A PAL is an emission limitation expressed in tons per year for a pollutant emitted by a major stationary source that is enforceable as a practical matter and established source-wide in accordance with 40 C.F.R. §§ 52.21 (aa)(1) through (15).

119. A PAL provides an alternative method for determining PSD applicability, but the

applicability provisions of the PSD rules continue to be required for all air pollutants at a source for which there is no lawful PAL. 67 Fed. Reg. 80,186, 80,208 (Dec. 31, 2002).

120. Furthermore, the PSD rules authorize only the creation of an “actuals PAL” on any existing major stationary source. 40 C.F.R § 52.21 (aa)(1); ARSD 74:36:09:02.

121. An “actuals PAL” means a PAL established as the sum of the baseline actual emissions for each existing unit, measured over a specified consecutive 24-month period, plus the potential to emit of any existing unit for which construction was commenced after the 24-month baseline period, plus an amount equal to the applicable significant increase level of the pollutant as defined in 40 C.F.R. § 52.21(b)(23). 40 C.F.R §§52.21 (aa)(2)(i); (aa)(6)(i)&(ii), ARSD 74:36:09:02.

122. There is no existing PAL in place on Big Stone I.

123. After March 23, 2003, a PAL may not be created that does not comply with the PAL requirements set forth at 40 C.F. R. § 52.21(aa)(1)-(15). 40 C.F.R. §§ 52.21 (aa)(15)(i).

124. The Proposed Big Stone II project, including the proposed plantwide emission limits on NO<sub>x</sub> and SO<sub>2</sub>, cannot be used to establish a PAL or PALs for the modified Big Stone Plant because the modified Big Stone Plant is not an existing stationary source. The physical changes that would allow the establishment of the proposed plantwide caps have not yet been permitted or constructed.

125. The plantwide emission limits on NO<sub>x</sub> and SO<sub>2</sub> proposed for the modified Big Stone Plant are not lawful PALs because the limits do not meet the other PAL requirements set forth at 40 C.F.R. §52.21(aa) (1)-(15).

126. SDDENR has not established the plantwide emission limits in accordance with all

of the requirements of 40 C.F. R. 52.21(aa)(4)(i)(a)-(g).

127. Because the proposed plantwide emission limits on NO<sub>x</sub> and SO<sub>2</sub> do not comply with the requirements of a PAL established under the PSD program, the plantwide limits are not a lawful alternative to PSD applicability analysis for the proposed Big Stone II modification to the Big Stone Plant.

128. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seeks an order from the Board denying the proposed PSD permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 3: The Title V Permit Is Unlawful Because it Includes Plantwide Limits for NO<sub>x</sub> and SO<sub>2</sub> That Do Not Meet the Requirements of the Clean Air Act or South Dakota Law.**

129. All the preceding paragraphs are incorporated herein as if set forth in full.

130. The South Dakota Title V rules provide that a plantwide cap on emissions of a particular pollutant can be issued in a Title V permit to allow for the trading of emissions increases and decreases in the permitted facility, but only if the cap is established solely for the purpose of complying with a federally enforceable emissions cap that is established in the permit independent of otherwise applicable requirements. ARSD 74:36:05:30.

131. The plantwide emission limits on SO<sub>2</sub> and NO<sub>x</sub> incorporated in the Title V permit for the Big Stone Plant are established in an attempt to avoid PSD review for the NO<sub>x</sub> and SO<sub>2</sub> emissions associated with the Big Stone II major modification. They are not established independent of otherwise applicable requirements.

132. As shown in Issues 1 and 2 above, the plantwide emission limits are not established based on legal netting analysis, nor are the limits lawful PALs under the PSD

provisions of the Act. The plantwide SO<sub>2</sub> and NO<sub>x</sub> limits included in the Title V permit are therefore not required by the Clean Air Act, in fact they are directly contrary to the requirements of the Clean Air Act and therefore unlawful.

133. Under South Dakota's rules, all terms and conditions of a Title V permit are federally enforceable, except those conditions that are not required by the Clean Air Act. ARSD 74:36:05:50. The proposed plantwide emission limits on SO<sub>2</sub> and NO<sub>x</sub> emissions from the modified Big Stone Plant are therefore not federally enforceable.

134. Because the proposed Title V permit contains unlawful plantwide emission limits on SO<sub>2</sub> and NO<sub>x</sub>, the Title V permit is unlawful, under the Clean Air Act and South Dakota law.

135. Pursuant to ARSD. 74:09:01:01, Petitioners contest the issuance of the Title V permit on the grounds set forth above and seek an order from the Board denying the proposed Title V permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 4: The Proposed Title V Permit for the Big Stone Plant is Unlawful Because it that Does Not Incorporate Enforceable Emissions Limitations Representing BACT for SO<sub>2</sub> and NO<sub>x</sub>.**

136. All the preceding paragraphs are incorporated herein as if set forth in full.

137. As set forth in Issue 1 above, the Big Stone II project is a major modification of the existing Big Stone Plant, for which the Clean Air Act requires BACT emissions limits for SO<sub>2</sub> and NO<sub>x</sub>. BACT emissions limits for SO<sub>2</sub> and NO<sub>x</sub> are applicable requirements of the Act within the meaning of 40 C.F.R. §70.2. Additionally, the issuance of a Title V permit does not alter the applicable requirements to obtain a lawful PSD permit prior to construction or modification of a major emitting facility. 42 U.S.C. §7661a; ARSD 74:36:05:03:01.

138. The proposed Title V permit does not include emissions limits for SO<sub>2</sub> and NO<sub>x</sub> that reflect BACT for the modified Big Stone Plant.

139. Because the Title V permit does not include BACT emissions limits for SO<sub>2</sub> and NO<sub>x</sub> emissions, the permit does not assure compliance by the source with all applicable requirements of the Clean Air Act, or the implementing federal and South Dakota regulations for Title V operating permits. In addition, the Title V permit for the Big Stone Plant is less stringent than necessary to meet all applicable requirements of the Act, and therefore unlawful. 42 U.S.C. §7661c (a); 40 C.F.R. § 70.1(b), (c); ARSD 74:36:05:06 & 74:36:05:16:01(8).

140. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the Title V permit on the grounds set forth above, and seek an order from the Board denying the proposed Title V permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 5: The Title V Permit Is Unlawful Because it Includes Plantwide Limits for NO<sub>x</sub> and SO<sub>2</sub> That Are Based On Historic Emissions Levels from Big Stone I Which Were Unlawful Due to Prior Illegal Modifications to the Big Stone Plant.**

141. All the preceding paragraphs are incorporated herein as if set forth in full.

142. As set forth above, the owners and operators of Big Stone I undertook a series of major modifications which triggered the application of the PSD program for SO<sub>2</sub>, NO<sub>x</sub>, and PM and all the NSPS Subpart A and Db requirements to Big Stone I, but for which the required permits were not obtained, nor the required pollution controls added to the modified facility.

143. From and after these illegal modifications, Big Stone I emitted SO<sub>2</sub> and NO<sub>x</sub> in unlawful amounts.

144. As a consequence, any netting or trading based on or otherwise undertaken in

reliance on current emissions of SO<sub>2</sub> and NO<sub>x</sub> from Big Stone I, and conducted in an attempt to exempt Big Stone II from a full PSD review for SO<sub>2</sub> and NO<sub>x</sub>, including the application of BACT, is unlawful and legally deficient.

145. Because the plantwide limits on SO<sub>2</sub> and NO<sub>x</sub> are based on current emissions and historic emissions levels at Big Stone I following the illegal modifications, the plantwide limits are unlawful and legally deficient.

146. Even if the plantwide SO<sub>2</sub> and NO<sub>x</sub> limits contained in the Big Stone Title V permit constituted legally sufficient PALs for those pollutants, which they do not, the PAL would be set too high for SO<sub>2</sub> and NO<sub>x</sub> because it is premised on unlawful current and historic levels of SO<sub>2</sub> and NO<sub>x</sub> emissions from Big Stone I.

147. Because the Title V permit contains unlawful plantwide caps on SO<sub>2</sub> and NO<sub>x</sub>, it is unlawful.

148. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the Title V permit on the grounds set forth above and seek an order from the Board denying the proposed Title V permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 6: The Proposed Big Stone II PSD Permit Is Legally Invalid Because SDDENR Failed to Comply with the South Dakota Public Policy Codified in its Air Pollution Control Statutes**

149. All the preceding paragraphs are incorporated herein as if set forth in full.

150. Greenhouse gas emissions, including carbon dioxide (CO<sub>2</sub>) and methane contribute to global warming.

151. Global warming is a threat to public health, welfare and the environment.

152. Because Big Stone II's greenhouse gas emissions will contribute to global warming, SDDENR's proposed issuance of the Big Stone II PSD permit directly conflicts with the SDCL 34-A-1-1, which declares that in South Dakota it is:

the public policy of the state to achieve and maintain reasonable levels of air quality which will protect human health and safety, prevent injury to plant and animal life and property, foster the comfort and convenience of its inhabitants, promote the economic and social development of the state and, to the greatest degree practicable, facilitate the enjoyment of the natural attractions of the state. It is also declared that local and regional air pollution control programs are to be supported to the extent practicable as essential instruments for the securing and maintenance of appropriate levels of air quality. To these ends it is the purpose of this chapter to provide for a coordinated state-wide program of air pollution prevention, abatement and control, for an appropriate distribution of responsibilities among the state and local units of government, and to facilitate cooperation across jurisdictional lines in dealing with problems of air pollution not confined within single jurisdictions, and to provide a framework within which all values may be balanced in the public interest.

SDCL 34-A-1-1.

153. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 7: The Proposed Big Stone II PSD Permit Is Legally Invalid Because SDDENR Failed to Include a BACT Limit or Requirements for Greenhouse Gas Emissions**

154. All the preceding paragraphs are incorporated herein as if set forth in full.

155. If constructed, the Big Stone II project would be a "major modification" to an existing major stationary source. *See* 40 C.F.R. § 52.21(b)(2); ARSD 74:36:09:02.

156. Each new major stationary source must have a BACT emission limitation for each regulated NSR pollutant that it would have the potential to emit in significant amounts. 40 C.F.R. § 52.21(j)(2); ARSD 74:36:09:02.



157. Big Stone II will emit CO<sub>2</sub> in a significant amount. 40 C.F.R. § 52.21(b)(23)(ii); ARSD 74:36:09:02. .

158. Big Stone II will emit methane in significant amounts. 40 C.F.R. § 52.21(b)(23)(ii); ARSD 74:36:09:02.

159. The proposed Big Stone II PSD permit is legally invalid because SDDENR failed to include in the permit BACT emission limitations for greenhouse gases.

160. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 8: The Proposed Big Stone II PSD Permit is Legally Invalid Because SDDENR Failed to Evaluate Integrated Gasification Combined Cycle (“IGCC”) Technology as a Pollutant Control Option in its BACT Analysis.**

161. All the preceding paragraphs are incorporated herein as if set forth in full.

162. Best available control technology (“BACT”) is defined as:

an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under [the] Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification *through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.*

40 C.F.R. § 52.21(b)(12) (emphasis added); ARSD 74:36:09:02; *see also* 42 U.S.C. §7479(3).

163. In 1977, Congress specifically amended the definition of BACT to include the phrase “innovative fuel combustion techniques” which a review of the Congressional history shows was intended to include gasification.

164. IGCC is a process that turns coal into gas which is then used for generating electricity.

165. Otter Tail did not evaluate IGCC as a BACT option in its Big Stone II PSD permit application as supplemented and revised.

166. Because SDDENR failed to consider or require consideration of IGCC in the Big Stone II BACT analysis, the Big Stone II PSD permit is legally invalid.

167. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above, and Petitioners seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 9: The Proposed Big Stone II PSD Permit is Legally Invalid Because SDDENR Failed to Include a BACT Limit or Requirements Specific to Particulate Matter with an Aerodynamic Diameter Equal to or Less Than 2.5 Microns (PM<sub>2.5</sub>).**

168. All the preceding paragraphs are incorporated herein as if set forth in full.

169. PM<sub>2.5</sub> is a regulated NSR pollutant. *See* 40 C.F.R. § 52.21(b)(50)(I); ARSD 74:36:09:02.

170. Big Stone II will emit PM<sub>2.5</sub> in a significant amount. 40 C.F.R. § 52.21(b)(23)(ii); ARSD 74:36:09:02.

171. The proposed Big Stone II PSD permit is legally invalid because SDDENR failed to include in the permit a BACT emission limitation for PM<sub>2.5</sub>.

172. SDDENR's proposed BACT limit for PM<sub>10</sub> for the Big Stone II boiler does not reflect BACT for the PM<sub>2.5</sub> or the PM<sub>2.5</sub> precursors to be emitted from the Big Stone II boiler.

173. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit

on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 10: The Proposed Big Stone II PSD Permit is Legally Invalid Because the PM<sub>10</sub> BACT Emission Limits for the Big Stone II Boiler Fail to Reflect the Maximum Level of Control That Can Be Achieved.**

174. All the preceding paragraphs are incorporated herein as if set forth in full.

175. The proposed Big Stone II PSD permit specifies the following emission limits as BACT for PM<sub>10</sub> from the Big Stone II boiler: 0.012 pounds per million British Thermal Unit heat input (lb/MMBtu) for filterable PM<sub>10</sub>, 72 pounds per hour (lb/hr) for filterable PM<sub>10</sub>, and 0.03 lb/MMBtu for filterable and condensable PM<sub>10</sub>. Proposed Big Stone II PSD Permit, Section 4.1.

176. In setting the emission limitations for PM<sub>10</sub>, SDDENR erred as a matter of law by failing to consider all available production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques.

177. The alternatives SDDENR failed to consider include but are not limited to IGCC. The technologies not considered include, but are not limited to, an advanced hybrid particulate collector, a more efficient fabric filter baghouse, a wet electrostatic precipitator, and more efficient SO<sub>2</sub> controls.

178. In setting the emission limits for PM<sub>10</sub>, SDDENR erred as a matter of law by failing to set PM<sub>10</sub> BACT emission limits that reflect the maximum degree of PM<sub>10</sub> emission reduction that could be achieved at Big Stone II consistent with the definition of BACT at 40 C.F.R. § 52.21(b)(12); ARSD 74:36:09:02.

179. Had SDDENR conducted a proper BACT analysis for PM<sub>10</sub> at Big Stone II

consistent with the definition of BACT, the PM10 BACT limits established in the PSD Permit would have been lower.

180. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 11: The Proposed Big Stone II PSD Permit is Legally Invalid Because the Sulfuric Acid Mist BACT Emission Limits for the Big Stone II Boiler Fail to Reflect the Maximum Level of Control That Can Be Achieved.**

181. All the preceding paragraphs are incorporated herein as if set forth in full.

182. The proposed Big Stone II PSD permit specifies the following emission limit as BACT for sulfuric acid mist from the Big Stone II boiler: 0.005 lb/MMBtu. Proposed Big Stone II PSD Permit, Section 4.4.

183. In setting the emission limitation for sulfuric acid mist, SDDENR erred as a matter of law by failing to fully consider all available production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques.

184. The alternatives SDDENR failed to consider include but are not limited to IGCC. The methods and technologies not considered include, but are not limited to, a wet electrostatic precipitator, a low SO<sub>2</sub> to SO<sub>3</sub> conversion selective catalytic reduction (SCR) catalyst, lowering the temperature across the SCR catalyst using more frequent soot blowing, a more efficient SO<sub>2</sub> scrubber (such as the Chiyoda bubbling jet reactor), regenerating the SCR catalyst rather than replacing it, and combinations of these control options.

185. In setting the emission limit for sulfuric acid mist, SDDENR erred as a matter of

law by failing to set a sulfuric acid mist BACT emission limit that reflects the maximum degree of sulfuric acid mist emission reduction that could be achieved at Big Stone II consistent with the definition of BACT at 40 C.F.R. §52.21(b)(12); ARSD 74:36:09:02.

186. Had SDDENR conducted a proper BACT analysis for sulfuric acid mist at Big Stone II consistent with the definition of BACT, the sulfuric acid mist BACT limit would be lower.

187. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 12: The Proposed Big Stone II PSD Permit is Legally Invalid Because the Fluoride BACT Emission Limit for the Big Stone II Boiler Fail to Reflect the Maximum Level of Control That Can Be Achieved.**

188. All the preceding paragraphs are incorporated herein as if set forth in full.

189. The proposed Big Stone II PSD permit specifies the following emission limit as BACT for fluoride from the Big Stone II boiler: 0.0006 lb/MMBtu. Proposed Big Stone II PSD Permit, Section 4.5.

190. In setting the emission limitation for fluoride, SDDENR erred as a matter of law by failing to fully consider all available production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques.

191. The alternatives SDDENR failed to consider include but are not limited to IGCC. The methods and technologies not considered include, but are not limited to, a more efficient SO<sub>2</sub> scrubber, and more efficient particulate matter control.

192. In setting the emission limit for fluoride, SDDENR erred as a matter of law by

failing to set a fluoride BACT emission limit that reflects the maximum degree of fluoride emission reduction that could be achieved at Big Stone II consistent with the definition of BACT at 40 C.F.R. §52.21(b)(12); ARSD 74:36:09:02.

193. Had SDDENR conducted a proper BACT analysis for fluoride at Big Stone II, the fluoride BACT limit would be lower.

194. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 13: The Proposed Big Stone II PSD Permit is Legally Invalid Because It Fails to Require Continuous Compliance with BACT Emission Limitations.**

195. All the preceding paragraphs are incorporated herein as if set forth in full.

196. The proposed Big Stone II PSD Permit is legally invalid because Conditions 4.1 through 4.5 and 4.8 of the Big Stone II PSD Permit violate 40 C.F.R. §52.21(b)(12); ARSD 74:36:09:02; and 42 U.S.C. §§ 7479(3) and 7602(k). These provisions require BACT emission limitations and standards to provide for the control of air pollution on a “continuous basis,” yet Conditions 4.1 through 4.5 and 4.8 of the proposed Big Stone II PSD permit create exemptions from meeting, during startup and shutdown, emission limitations that SDDENR determined were reflective of BACT.

197. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above, and Petitioners seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 14: The Proposed Big Stone II PSD Permit is Legally Invalid Because There Has Been No Demonstration that the Big Stone II Boiler Would Not Cause or Contribute to a**

**Violation of the National Ambient Air Quality Standards or PSD Increments During Startup or Shutdown.**

198. All the preceding paragraphs are incorporated herein as if set forth in full.

199. SDDENR may not issue a PSD permit for Big Stone II unless it has been adequately demonstrated that Big Stone II would not cause or contribute to a violation of any PSD increment or any NAAQS. 40 C.F.R. §52.21(k); ARSD 74:36:09:02; 42 U.S.C. 7275(a)(3).

200. The proposed Big Stone II PSD permit includes exemptions from the numerical BACT emission limits for PM<sub>10</sub>, sulfuric acid mist, fluorides, volatile organic compounds as carbon, and carbon monoxide during periods of startup and shutdown. Big Stone II PSD Permit, Conditions 4.1 through 4.5, 4.8.

201. Rather than having to meet numerical BACT emission limitations during periods of startup and shutdown, Otter Tail is merely obligated under the proposed PSD permit to use “good work and maintenance practices and manufacturer’s recommendations to minimize emissions during, and the frequency and duration of, startup [and] shutdown...events....” Proposed Big Stone II PSD Permit, Condition 4.8.

202. Neither Otter Tail nor SDDENR provided any air quality modeling analyses to demonstrate that the Big Stone II boiler would not cause or contribute to a violation of any national ambient air quality standard (NAAQS) or any PSD increment during periods of startup or shutdown of the Big Stone II boiler.

203. SDDENR has unlawfully issued the Big Stone II PSD permit without an adequate demonstration that Big Stone II would not cause or contribute to a violation of any PSD increment or of any NAAQS.

204. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit

on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 15: The Proposed Big Stone II PSD Permit Is Legally Invalid Because There Has Not Been an Adequate Demonstration that Big Stone II Will Not Cause or Contribute to a Violation of the 24-Hour Average PM10 PSD Increments or to a Violation of the 24-Hour Average PM10 NAAQS.**

205. All the preceding paragraphs are incorporated herein as if set forth in full.

206. SDDENR may not issue a PSD permit for Big Stone II unless it has been adequately demonstrated that Big Stone II would not cause or contribute to a violation of any PSD increment or any NAAQS. 40 C.F.R. § 52.21(k); ARSD 74:36:09:02; 42 U.S.C.

7475(a)(3).

207. All estimates of ambient air impacts for PSD permits are required to be based on the models, databases, and other requirements of EPA's Guideline on Air Quality Models in 40 C.F.R. Part 51, Appendix W. *See* 40 C.F.R. § 52.21(l); ARSD 74:36:09:02.

208. The applicable 24-hour average PM10 increment is  $30 \mu\text{g}/\text{m}^3$ , which may be exceeded only during one 24-hour period at any one location per year. 40 C.F.R. §52.21(c); ARSD 74:36:09:02.

209. The applicable 24-hour average PM10 NAAQS is  $150 \mu\text{g}/\text{m}^3$ . 40 C.F.R. §50.6(a); ARSD 74:36:02:02.

210. Otter Tail's PM10 increment modeling results show that Big Stone II would cause or contribute to a 24-hour average PM10 concentration of  $29.98 \mu\text{g}/\text{m}^3$ , which is 99.93% of the Class II 24-hour average PM10 PSD increment. Big Stone II PSD Permit Application, as revised July 2007, at 6-11.

211. Otter Tail's PM10 NAAQS modeling results show that Big Stone II would cause



or contribute to a 24-hour average PM10 concentration of 93.32 µg/m<sup>3</sup>. Big Stone II PSD Permit Application, as revised July 2007, at 6-10.

212. The Big Stone II PSD permit application, as supplemented and revised, was incomplete because Otter Tail failed to submit the AERMOD surface meteorological data that was used in the AERMOD PM10 modeling analyses. 40 C.F.R. 52.21(n), 42 U.S.C. §7475(a)(2). SDDENR failed to verify Otter Tail's AERMOD modeling results for PM10.

213. Otter Tail erred in its calculation of PM10 emissions from paved haul roads at Big Stone and neither Otter Tail or SDDENR adequately justified Otter Tail's methods and assumptions for estimating PM10 emissions from paved haul roads at Big Stone.

214. In addition, neither Otter Tail or SDDENR adequately justified use of a background silt loading value of 0.6 grams per square meter (g/m<sup>2</sup>) as reflective of maximum 24-hour average PM10 emission rates from paved roads at the Big Stone facility.

215. The errors identified above, individually and collectively, resulted in an underestimate of PM10 emissions from haul roads at Big Stone, which subsequently resulted in an underestimate of the 24-hour average PM10 concentrations that Big Stone II would cause or contribute to.

216. The number, spacing, and/or placement of receptors in the 24-hour average PM10 NAAQS and increment modeling for Big Stone II was not adequate to capture the highest 24-hour average ambient air PM10 impacts that Big Stone II would cause or would contribute to as required by PSD modeling requirements. *See* 40 C.F.R. § 52.21(l); ARSD 74:36:09:02; 40 C.F.R. Part 51, Appendix W, Section 7.2.2.

217. The meteorological data used in the modeling for Big Stone II was not adequate to

reflect the worst case meteorological conditions that would cause the highest 24-hour average ambient air PM10 impacts that Big Stone II would cause or contribute to as required by PSD modeling requirements. *See* C.F.R. § 52.21(l); ARSD 74:36:09:02; 40 C.F.R. Part 51, Appendix W, Section 8.3.

218. The errors identified above regarding haul road emissions, silt content assumed, modeling receptors, and meteorological data, individually and collectively, resulted in an underestimate of 24-hour average PM10 increment consumption and an underestimate of impacts on the 24-hour average PM10 NAAQS.

219. Consequently, the proposed Big Stone II PSD permit is legally invalid because there has not been an adequate demonstration that Big Stone II will not cause or contribute to a violation of the 24-hour average PM10 increments or the 24-hour average PM10 NAAQS.

220. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

**Issue 16: The Big Stone II PSD Permit and the Big Stone Plant Title V Permit Are Legally Invalid Because Neither Otter Tail or SDDENR Has Adequately Demonstrated that the Big Stone Plant Would Not Prevent Attainment, or Cause and Contribute to a Violation, of the SO<sub>2</sub> or NO<sub>2</sub> NAAQS.**

221. All the preceding paragraphs are incorporated herein as if set forth in full.

222. SDDENR presented SO<sub>2</sub> and NO<sub>2</sub> modeling results for Big Stone II Project and Big Stone I Modeled Impact in its 2006 Statement of Basis for the 2006 draft Big Stone II PSD permit (Table 10-21).

223. SDDENR based the SO<sub>2</sub> and NO<sub>x</sub> emissions modeled for Big Stone I and II on the proposed plant wide limits for SO<sub>2</sub> and NO<sub>x</sub>. 2006 Statement of Basis for the 2006 draft Big

Stone II PSD permit at 33.

224. SDDENR's modeling is flawed because the meteorological data used in the SO<sub>2</sub> and NO<sub>2</sub> modeling for Big Stone II and the Big Stone Plant was not adequate to reflect the worst case meteorological conditions that would cause the highest ambient air SO<sub>2</sub> impacts or the highest NO<sub>2</sub> impacts. *See* 40 C.F.R. § 52.21(l); ARSD 74:36:09:02; 40 C.F.R. Part 51, Appendix W, Section 8.3.

225. SDDENR's modeling is flawed because it did not reflect the allowable SO<sub>2</sub> emission rates that the Big Stone I and the Big Stone II boilers would each be allowed to emit over a 3-hour period, over a 24-hour period, and/or over an annual averaging period.

226. SDDENR's modeling is flawed because it did not reflect the allowable NO<sub>x</sub> emission rates that the Big Stone I and the Big Stone II boilers would each be allowed to emit over an annual averaging period.

227. Consequently, the proposed Big Stone II PSD permit and the proposed Big Stone Title V permit are legally invalid because there has not been an adequate demonstration that the Big Stone Plant will not cause or contribute to a violation of, or prevent or interfere with attainment or maintenance of, the SO<sub>2</sub> NAAQS or the NO<sub>2</sub> NAAQS.

228. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit and of the Title V permit on the grounds set forth above and seek an order from the Board denying the proposed PSD permit for Big Stone II and the proposed Title V permit for the Big Stone plant or remanding both those permits so that further corrective action can be taken, if possible.

**Issue 17: The Big Stone II PSD Permit Is Legally Invalid Because There Has Not Been an Adequate Demonstration that Big Stone II Will Not Cause or Contribute to a Violation of the PM<sub>2.5</sub> NAAQS.**

229. All the preceding paragraphs are incorporated herein as if set forth in full.

230. The 24-hour average PM<sub>2.5</sub> NAAQS is 35 µg/m<sup>3</sup> and the annual average PM<sub>2.5</sub> NAAQS is 15 µg/m<sup>3</sup>. 40 C.F.R. § 50.13(a); ARSD 74:36:02:02.

231. Otter Tail's PM<sub>2.5</sub> modeling results show that Big Stone II would cause or contribute to a 24-hour average PM<sub>2.5</sub> concentration of 34.31 µg/m<sup>3</sup> and that Big Stone II would cause or contribute to an annual average PM<sub>2.5</sub> concentration of 14.66 µg/m<sup>3</sup>. Big Stone II PSD Permit Application, as revised July 2007, at 6-12.

232. The Big Stone II PSD permit application, as supplemented and revised, was incomplete because Otter Tail failed to submit the AERMOD surface meteorological data that was used in the AERMOD PM<sub>2.5</sub> modeling analyses. 40 C.F.R. 52.21(n); 42 U.S.C. §7475(a)(2).

233. SDDENR failed to verify Otter Tail's AERMOD modeling results for PM<sub>2.5</sub>.

234. Otter Tail erred in its calculation of PM<sub>2.5</sub> emissions from paved haul roads at Big Stone and neither Otter Tail or SDDENR adequately justified Otter Tail's methods and assumptions for estimating PM<sub>2.5</sub> emissions from paved haul roads at Big Stone.

235. In addition, neither Otter Tail or SDDENR adequately justified use of a background silt loading value of 0.6 grams per square meter (g/m<sup>2</sup>) as reflective of maximum PM<sub>2.5</sub> emission rates from paved roads at the Big Stone Plant.

236. The errors identified above, individually and collectively, resulted in an underestimate of PM<sub>2.5</sub> emissions from haul roads at the Big Stone Plant, which subsequently resulted in an underestimate of the PM<sub>2.5</sub> concentrations that Big Stone II would cause or contribute to.

237. Otter Tail also failed to account for effects of PM<sub>2.5</sub> precursor emissions from the Big Stone Plant in its PM<sub>2.5</sub> NAAQS modeling for the Big Stone II PSD permit.

238. The number, spacing, and/or placement of receptors in the PM<sub>2.5</sub> NAAQS modeling analysis for Big Stone II was not adequate to capture the highest ambient air PM<sub>2.5</sub> impacts that Big Stone II would cause or would contribute to as required by PSD modeling requirements. *See* 40 C.F.R. § 52.21(l); ARSD 74:36:09:02 and 40 C.F.R. Part 51, Appendix W, Section 7.2.2.

239. The meteorological data used in the modeling for Big Stone II was not adequate to reflect the worst case meteorological conditions that would cause the highest ambient air PM<sub>2.5</sub> impacts that Big Stone II would cause or contribute to as required by PSD modeling requirements. *See* C.F.R. § 52.21(l); ARSD 74:36:09:02 and 40 C.F.R. Part 51, Appendix W, Section 8.3.

240. The errors identified above regarding haul road emissions, silt content assumed, PM<sub>2.5</sub> precursor emissions, modeling receptors, and meteorological data, individually and collectively, resulted in an underestimate of 24-hour average and annual average PM<sub>2.5</sub> concentrations that Big Stone II would cause or contribute to.

241. Consequently, the proposed Big Stone II PSD permit is legally invalid because there has not been an adequate demonstration that Big Stone II will not cause or contribute to a violation of the PM<sub>2.5</sub> NAAQS.

242. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the PSD permit on the grounds set forth above and seek an order from the Board denying the proposed permit for Big Stone II or remanding both those permits so that further corrective action can be taken, if

possible.

**Issue 18: The Big Stone Title V Permit Is Legally Invalid Because it Fails to Include Case By Case MACT Requirements for Big Stone II.**

243. All the preceding paragraphs are incorporated herein as if set forth in full.

244. No person may begin construction of a major source of hazardous air pollutants (HAPs) in a listed industry for which no nationally applicable regulations have been promulgated, without being subject to maximum achievable control technology-based emissions standards determined on a case-by-case basis (“MACT”). 42 U.S.C. § 7412(g), 40 C.F.R. § 63.43(a); ARSD 74:36:08:03.01.

245. On December 20, 2000, electric utility steam generating units such as Big Stone II were added to the list of source categories pursuant to Section 112(c) of the Clean Air Act (42 U.S.C. § 7412(c)) for which EPA must establish emission standards under Section 112(d) of the Clean Air Act. *See* 65 Fed. Reg. 79825, 79,827 (December 20, 2000); *see also* 67 Fed. Reg. 6521, 6522 (February 12, 2002).

246. For the purpose of case-by-case MACT regulations, a major source is defined as:

any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants. . . .

40 C.F.R. § 63.2; ARSD 74:36:08:03.

247. For the purpose of case-by-case MACT regulations, potential to emit means:

the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. § 63.2; ARSD 74:36:08:03.

248. The proposed Big Stone Title V permit includes an exemption for Big Stone II, Unit #13, from case-by-case MACT requirements “based on operational and hazardous air pollutant emission limits” in the proposed Big Stone Title V permit. *See* Condition 11.8 of the proposed Big Stone Title V permit; *see also* Section 11.0 of the proposed Big Stone Title V permit.

249. The proposed Big Stone Title V permit includes individual emission limits on hydrogen fluoride and hydrogen chloride emissions from Big Stone II, Unit #13 of 2.17 pounds per hour each. No averaging time is identified for these emission limits. *See* Conditions 11.3 and 11.4 of the proposed Big Stone Title V permit.

250. The proposed Big Stone Title V permit includes “unit-wide” emission limits as follows: 9.5 tons of a single hazardous air pollutant (HAP) or 23.8 tons of a combination of HAPs per 12 month rolling period.

251. Compliance with these limits is to be based on continuous emission monitoring data for mercury and, for the remaining HAP emissions, the most recent stack performance test, mass balance, emission factors, or other approved method of calculating hazardous air pollutant emissions. *See* Condition 11.5 of the proposed Big Stone Title V permit.

252. The proposed Big Stone Title V permit includes a requirement that Otter Tail conduct an initial performance test on Big Stone II, Unit #13 within 180 days after initial startup to determine the hydrogen fluoride and hydrogen chloride emission rates from Unit #13 and the hydrogen chloride and hydrogen fluoride control efficiencies. *See* Condition 7.12 of the proposed Big Stone Title V permit.

253. SDDENR failed to provide any notice to the public or opportunity for comment on the Big Stone Title V permit conditions that provide an exemption for Big Stone II, Unit #13, from case-by-case MACT requirements.

254. Accordingly, the Big Stone Title V permit is invalid because the public never had the opportunity to review and comment on the provisions in Section 11.0 which attempt to provide an exemption for Big Stone II from case-by-case MACT requirements.

255. Even if the provisions in Section 11.0 of the proposed Big Stone Title V permit were properly noticed to the public and opportunity to comment provided, Section 11.0 of the Big Stone Title V permit unlawfully and improperly exempts Big Stone II from case-by-case MACT requirements for, at the minimum, the following three reasons.

256. The proposed Big Stone Title V permit fails to include adequate terms and conditions to meet requirements for Federal and practical enforceability. Consequently, the HAP emission limitations in the Big Stone Title V permit fail to limit potential to emit HAP of Big Stone II, Unit #13, to less than major source thresholds.

257. Neither Otter Tail or SDDENR has adequately demonstrated that the emission calculations accurately reflect the maximum emissions of each HAP at full design capacity of Big Stone II, Unit #13, without pollution control equipment.

258. Neither Otter Tail or SDDENR adequately demonstrated that the assumptions relied on in estimating HAPs from Big Stone II, Unit #13, accurately reflected the HAP control efficiency of the planned pollution control equipment at Big Stone II, Unit #13. Indeed, it is questionable that the Big Stone II pollution control equipment will limit HAP emissions at Big Stone II to less than major source thresholds.



259. Comparison of the hydrogen fluoride limit in Section 11 of the Big Stone Title V permit to the hydrogen fluoride BACT limit of the Big Stone II PSD permit provides pertinent example of the unlikelihood that the Big Stone II pollution control equipment will actually control HAP to less than major source thresholds.

260. The fluoride BACT emission limit of the Big Stone II permit is 0.0006 lb/MMBtu. Proposed Big Stone II PSD Permit, Section 4.5.

261. Considering the maximum heat input capacity of the Big Stone II boiler as identified in Condition 1.1 of the Big Stone Title V permit, fluoride emissions reflective of BACT at Big Stone II could be as high as 3.6 lb/hr, or 15.8 tons per year assuming continual operation at maximum capacity, which exceeds the 10 ton per year major source threshold for a single HAP.

262. Nonetheless, Otter Tail calculated the potential to emit hydrogen fluoride from Big Stone II as 9.48 tons per year. *See* Attachment to March 18, 2008 submittal from Otter Tail to SDDENR.

263. And SDDENR, in its flawed attempt to limit potential to emit hydrogen fluoride at Big Stone II to less than the major source threshold of 10 tons per year, imposed a Title V permit condition limiting hydrogen fluoride emissions at Big Stone II to 2.17 pounds per hour - an emission limit that is 40% lower than the limit SDDENR determined was reflective of the maximum degree of fluoride reduction that could be achieved at Big Stone II.

264. As a result of all of these errors and deficiencies including the lack of public notice and opportunity to comment on the HAP emission limits to exempt Big Stone II from case-by-case MACT, the Big Stone Title V permit unlawfully and improperly exempts Big Stone

II from case-by-case MACT requirements.

265. Additionally, the Big Stone Title V permit unlawfully and improperly authorizes operation of Big Stone II without including a determination of case-by-case MACT and/or without including emission limits reflective of case-by-case MACT for the HAPs to be emitted by Big Stone II.

266. Pursuant to ARSD 74:09:01:01, Petitioners contest the issuance of the Big Stone Title V permit on the grounds set forth above and seek an order from the Board denying the proposed Title V permit or remanding both those permits so that further corrective action can be taken, if possible.

**Issue 19: SDDENR Has Failed to Impose All Applicable Requirements in its Proposed Big Stone Title V Permit and Has Improperly Authorized Operation of Big Stone II in the Proposed Title V Permit.**

267. All the preceding paragraphs are incorporated herein as if set forth in full.

268. Concurrent with its proposed issuance of the Big Stone II PSD permit, SDDENR proposed issuance of a Title V permit authorizing operation of all of the existing emission units of Big Stone I as well as authorizing operation of all of the new emission units associated with Big Stone II.

269. Otter Tail has not yet submitted a Title V permit application for Big Stone II.

270. SDDENR failed to include any of the conditions of the proposed Big Stone II PSD permit in the proposed Big Stone Title V permit.

271. The proposed Big Stone Title V permit is therefore invalid because it authorizes operation of the modified Big Stone plant without imposing emission limits and standards necessary to assure compliance with all applicable requirements of the Clean Air Act. ARSD


74:36:09:05:16.01(8), (9), and (19).

272. Pursuant to ARSD 74:09:01:01, Sierra Club and Clean Water Action, Inc. contest the issuance of the Title V permit on the grounds set forth above, and seek an order from the Board denying the proposed Title V permit for Big Stone II or remanding the permit so that further corrective action can be taken, if possible.

WHEREFORE, Petitioners request:

1. A full contested case evidentiary hearing before the Board on the issues set forth in this Petition;
2. An order from the Board declaring that the contested proposed Title V and Proposed PSD permits are unlawful and legally and/or technically invalid for the reasons set forth in this Petition;
3. An order from the Board denying the proposed Title V and PSD permits or remanding those permits so that further corrective action can be taken, if possible; and
4. Any other relief to which Petitioners are entitled.

Respectfully submitted this 15th day of May, 2008.

By   
WILLIAM J. MOORE, III  
(Admitted Pro Hac Vice)  
Florida Bar No. 0971812  
The Law Office of  
William J. Moore, III, P.A.  
1648 Osceola Street  
Jacksonville, Florida 32204  
Telephone (904) 685-2172  
Fax (904) 685-2172  
[wmoore@wjmlaw.net](mailto:wmoore@wjmlaw.net)

GEORGE E. HAYS  
(Admitted Pro Hac Vice)  
California State Bar No. 119904  
Attorney at Law  
236 West Portal Avenue, #110  
San Francisco, CA 94127  
Telephone: (415) 566-5414  
E-mail: [georgehays@mindspring.com](mailto:georgehays@mindspring.com)

AARON J. EMERSON  
Myers & Billion, LLP  
300 N. Dakota Avenue, Suite 510  
P. O. Box 1085  
Sioux Falls, S.D. 57101-1085  
Telephone: (605) 336-3700  
Facsimile: (605) 336-3786  
E-mail: [aemerson@myersbillion.com](mailto:aemerson@myersbillion.com)

### **CERTIFICATE OF SERVICE**

I, the undersigned attorney, hereby certify that on this 15<sup>th</sup> day of May, 2008 service of the foregoing Petition for Contest Case Hearing was duly made by sending a true and accurate copy thereof by electronic mail (pursuant to stipulation of the parties) to the following:

Christopher W. Madsen  
Boyce, Greenfield, Pashby & Welk  
P.O. Box 5015  
Sioux Falls, SD 57117-5015

Roxanne Giedd  
Attorney General's Office  
1302 E. Highway 14, #1  
Pierre, SD 57501

Kevin J. Finto  
Harry M. Johnson, III  
Penny A. Shanblin  
Hunton & Williams LLP  
Riverfront Plaza, East Tower  
951 E. Byrd Street  
Richmond, VA 23219-4074

Lee M. McCahren  
P.O. Box 297  
Vermillion, SD 57069

Brenda Binegar  
Senior Secretary  
Division of Financial & Technical Assistance  
523 East Capitol  
Pierre, SD 57501

Charles D. McGuigan  
Chief Deputy Attorney General  
1302 E. Hwy 14, Suite 1  
Pierre, SD 57501-8501

Don Shephard  
Air Quality Division  
National Park Service  
P.O. Box 25287  
Denver, CO 80255-0287

Jim Kolar  
Minnesota Pollution Control Agency  
Air Quality Division  
520 North Lafayette Road  
St. Paul, MN 55155-4194

Terry O'Clair, Director  
North Dakota State Department of Health  
Air Quality Program  
918 E. Divide, 2nd Floor  
Bismarck, ND 58501-1947

Jeremy Nichols  
Rocky Mountain Clean Air Action  
1536 Wynkoop, Suite B501  
Denver, CO 80202

Darrell Gerber  
Energy Campaign Coordinator  
Clean Water Action  
308 East Hennepin Avenue  
Minneapolis, MN 55414

Mary Jo Stueve  
405 S. 3rd Avenue  
Suite 102A  
Sioux Falls, SD 57104

William E. Coester, Esq.  
232 South Main Street  
P.O. Box 66  
Milbank, SD 57252-0066  
Commissioner Louis Voeltz  
County Commission Chair  
Roberts County Commission  
14161 482nd Avenue  
Big Stone City, SD 57216

Commissioner Doug Stengel  
County Commission Chair  
Grant County Commission  
47802 147th Avenue  
Milbank, SD 57252

Honorable Dale Aesoph  
Mayor, City of Milbank  
1001 E. 4th Avenue, Suite 301  
Milbank, SD 57252-2424

Scott Anderson  
209 Owancaya Dute Drive  
Flandreau, SD 57028



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